Section B(b)
Evaluate what psychologists have found out about 'Environmental Disaster' and 'Technological Disaster'

Environmental disasters are occasions when nature takes control and causes large amounts of damage or even death while technological catastrophes refer to incidents that are due to human factors. The firsts issue to be considered is **Reductionism**. This can be defined as explaining complex behavior in terms of simple causes. There are many psychological and physical effects of disasters on individuals, but some psychologists are reductionist and stress that it's the disasters that cause the after effects of an individual rather than considering what the individuals were like before the disaster. **Fukuda et al – 1999** examined post traumatic stress and lifestyle change after the Hansin-Awajie earthquake in Japan. They were interested in the relationship between the change of lifestyle caused by the earthquake and psychological tress. They found that those who reported that their lifestyle had changed for the worse had higher levels of PTSD compared to the 'no change lifestyle' and the 'better lifestyle' groups. Suggesting that if after a disaster you change your lifestyle it will cause problems like post traumatic stress disorder. They simply consider PTSD in this case as a result of lifestyle change. Similarly is the work of **Johnson et al – 1982**, who tested children's pulmonary lung functioning 5 days after the eruption of Mount St Helens Volcano. Finding that there was no significant decrease in pulmonary functions recorded after the exposure to high levels of ash from the eruption. This was compared to the pulmonary functions after an episode of high pollution that was not related to the eruption. Pulmonary function decreased significantly. But the effect of ash on pulmonary functions could be due to the fact that all the residents around the eruption were told to stay indoor till four day later. They say that the absence of reduction in pulmonary function is due to the protective factor of not having been exposed to the ash fallout. In contrast is **Buist et** al who also researched the after effects of the eruption of Mount St Helens – examining group pf children attending a summer camp where 1.2 cm of ash had fallen. Children's lung functioning was tested on arrival and the morning and afternoon every 2nd or 3rd day of stay at the camp. There was no significant reduction in lung functioning of any of the children at the camp – they didn't explain this no effect of anything – it was just what was found.

The second issue to be considered is **Generalisability**. This can be defined as been able to generalise the results to the whole population, rather than depending on culture, sex or age. Many psychologists look into the after effects of disasters and catastrophes on individuals but much of their work is ungeneralisable. The work of **Bromet et al** who studied the after effects of a technological catastrophe on children was unable to generalise the results to all other ages of the population and of other cultures. This is because his participants were all 10 -12 years of age, so it cannot be said that all other age groups would have the same after effects. Also, as it was a technological catastrophe that happened in one area, it can't be generalized to all other cultures as others may not behave in the same manner. Similarly is work of **Johnson et a**l who looked into the effects of a natural disaster. They ere unable to generalize their findings because again they only used children from one area where the Mount St Helens Volcano erupted, disregarding the after effects of teenagers and adults and how those from other cultures would react. In contrast is the work of **Havenaar et al – 1997** who researched into the health effects of the Chernobyl. They examined participants 6.5 years after the disaster in a seriously contaminated area near

Chernobyl, and in a comparable but unaffected area in the Russian Federation – allowing cultural generalization, and with a sample size of 3, 044, results were to be well generalised to much of the population.

The third issue to be considered is **Control groups**. This can be defined as a group of people who are matched in one way or another to the group that's been tested to find comparisons or differences. Control groups can make the results more valid. **Havenaar et al – 1997** researched into the health effects of Chernobyl, examining participants 6.5 years after the disaster, in a seriously contaminated area near Chernobyl. The study doesn't say what is matched exactly but does state that a comparable but unaffected area in the Russian Federation is also tested. A total of 3,044 participants. Results indicated that those in the seriously contaminated area scored significantly higher on the questionnaires indicating poorer physical and psychological health. Similarly is **Bromet et al – 2000** who has noticed that there had been few studies examining the after effects of a technological catastrophe on children. A total of 300 children (infants) who lived near Chernobyl at the time of the disaster. The control group were another 300 children who did not live near the affected disaster – they were also assessed. Concluding that even though there were multiple stressors happening at the time of the Chernobyl disaster, the small difference uncovered point towards some protective factors that occurred in the child's life at that time. In contrast is **Fukuda et al – 2000**, who investigated the after effects of the Hansin-Awaji earthquakes focusing on lifestyle changes, Post Traumatic Stress, and cortisol levels of victims. His participants were 107 people who filled out questionnaires and had blood tests. But he never matched his participants with a control group. But he still found that psychologists stress caused by the earthquake was according to Fukuda et al linked to the cortical levels in the blood – the more perceived change there was, the higher the cortisol level was.

The fourth issue to be considered is **Longitudinal studies**. These can be defined as experiments which are carried out over a long period of time. They usually carry with them the problem of subject attrition, whereby the subjects drop out of the study for one reason or other. One psychologist who used a longitudinal study is **Parker – 1977**. We know he did a longitudinal study because he found that effects of disasters/catastrophes, such as anxiety, depression and intrusive thoughts, are only short term as they last only up to a year. He wouldn't know this if he hadn't been keeping in touch with his participants. He also states that experiencing symptoms that are long term is uncommon, often only 25 – 30% of victims suffer psychological effects months after the disaster – again showing evidence of a longitudinal study. Similarly is **Taylor & Frazer – 1982** who describe the effects of an air disaster in 1979 when a DC10 on a tourist flight crashed into a mountain in Antarctica and all of the 257 passengers and the crew were killed. Researchers followed up 193 members of the recovery personnel after the experience, at 3 and 20 month intervals. Some of these may have dropped out over time. In contrast is **Rubonis & Bickman – 1991**, who conducted a review of studies of mental health problems that follow disasters finding that there is a small consistent and significant association between them. He didn't conduct a longitudinal study so therefore subject attrition would have not been a problem for them.